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REMARKS

Claims 8 through 17 have been amended to more particularly point out the apparatus aspects of the present invention. Method claim 19 has been amended to correspond with the amendments to apparatus claim 8. In that regard the claims now more clearly distinguish the present invention over the teachings of the references relied upon by the examiner.

Claims 8 through 17 and 19 through 21 were rejected as obvious over the Kunii '260 reference in view of the Mori '246 reference. Independent claims 8 and 19 have been further amended to clarify that the control system is directed to controlling a working medium pressure for hydraulically controlling a contact pressure of a movable conical disk against an endless torque-transmitting member of a continuously variable transmission. The basis for the claim amendments is the description in paragraphs [0005] and [0037] of the specification, which relates to the problem of accurately controlling the pulley-belt contact pressure in a continuously variable transmission. The control is effected in both a nominal pressure range and in a maximum pressure range to avoid too high or too low a contact pressure, and thereby improve the efficiency of the transmission and reduce wear resulting from slippage of the belt relative to the conical disk surfaces.

Although the Kunii reference discloses a continuously variable transmission, the control system described in that reference operates to control the hydraulic pressure acting against a friction clutch (24) for slippingly engaging and disengaging a transmission countershaft (14) from a differential (22). The

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disclosure contained in the Kunii reference does not relate to a conical-disk-to-belt contact pressure regulation arrangement, and because that reference does not show any appreciation of the problem to which the present invention is directed, it cannot be said that Kunii teaches or even remotely suggests a solution to such a problem. Additionally, claim 8 as amended includes structural distinctions over the Kunii reference. As claimed, the pressure control or pressure reducing valve is operatively connected with the movable conical disk to adjust the working medium pressure within both a nominal pressure range and in a maximum pressure range. The Kunii reference does not teach or suggest such a structural arrangement.

The overall thrust of the Kunii reference is directed to the control of a starting clutch or a converter lockup clutch. It discloses an arrangement for permitting operation of the clutch with slippage in one predetermined operating region for smooth startup of a vehicle, and complete clutch engagement in another operating region for complete engine torque transmission. In Kunii, slippage operation is important in the startup process in order to slippingly engage the clutch to slowly synchronize the engine rotational speed with that of the drive wheels, which are initially stationary. That slipping mode of operation is essential to prevent an abrupt startup of the vehicle and to provide a comfortable vehicle start so that the effect on the vehicle occupants during startup is as small as possible, and also to prevent the engine from stalling in the event the engine torque is not sufficient to drive the vehicle. Otherwise, every sudden rotational speed equalization, without slipping the clutch, would lead to a torque-induced

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jolt and thereby to an undesired rapid acceleration of the vehicle that also acts on the vehicle occupants. In addition to being uncomfortable to the vehicle occupants, such torque jolts adversely affect the service life of the vehicle drive system components. One must bear in mind that in the Kunii reference there must be a specific clutch control region with a suitable control arrangement, so that the hydraulic valve can be finely adjusted to precisely control the clutch slippage.

The present invention, on the other hand, provides a solution to the problem of avoiding slippage, not enabling it. Thus, in a continuously variable transmission with movable conical disks that press against a drive belt or chain, slippage of the drive belt relative to the conical disks is to be avoided. And the present invention has nothing to do with the structural arrangement and the method of operation disclosed in Kunii, because Kunii does not relate to hydraulic control of a contact pressure between a drive belt and a conical disk pair.

The present invention relates to the control of contact pressure between conical disks and a drive belt or chain to assure that the drive belt or chain does not slip relative to the disks as a result of a speed difference therebetween. Such slippage, as noted in the Background of the Invention section of the present application, is to be prevented in all instances because it leads to greater wear, if not to failure of the transmission. In accordance with the present invention, the engine torque is to be transmitted without slippage, wherein the steep characteristic line serves also to permit the transmission of

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torque jolts that are greater than the nominal maximum torque of the engine. Further, no slipping torque synchronization between different rotational speeds of the drive belt and the conical disks takes place, as taught by Kunii, because such slippage is to be avoided in the present invention. Moreover, the gentle rotational speed synchronization between the engine rotational speed and the initially stationary drive wheels, as taught by Kunii, requires an additional, separate drive element, for example a friction clutch or a torque converter, which is not present in the present invention.

The Kunii reference is directed to the use of slippage in a torque-transmitting system, whereas the present invention is directed to the avoidance of slippage. And because of that fundamental difference there is no teaching or suggestion in the Kunii reference that would lead one having only ordinary skill in the art to utilize the Kunii apparatus for avoiding slippage of a drive belt relative to a conical disk. The reference teaches one how to provide slippage, not how to avoid it. Thus, because the emphasis in Kunii of the need for slippage between the engine rotational speed and the drive wheel speed would lead the ordinarily skilled person away from the Kunii reference.

The Mori reference also does not appreciate the problem to which the present invention is directed, nor does it teach a solution to that problem. In fact, that reference relates to an entirely different transmission structure — a conventional, torque-converter-type automatic transmission that does not include a drive belt or a pulley over which a drive belt passes. The Mori reference is directed to the problem of holding a forward speed when the driver inadvertently

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shifts the shift lever into reverse while the vehicle is moving in a forward direction. That problem is unrelated to the problem to which Kunii is directed, and thus there is no connection between the Kunii and Mori references that would lead one having only ordinary skill in the art to even consider combining their teachings.

Because each of the Kunii and Mori references relates to overcoming problems that are different from the problem to which the present invention is directed, one having only ordinary skill in the art would not be led to those references for inspiration for a solution for the avoidance of a belt-disk wear problem caused by slippage between those components. And even if one were led in some way to those references, the references, whether they be considered alone or together, neither teach nor even remotely suggest to such a person the present invention as claimed herein. Because the references contain no plausible link that would motivate one having ordinary skill in the art to even attempt to effect their combination, just how they could be combined to achieve the claimed invention is not at all apparent. In fact, the only basis that is apparent for even attempting to combine the teachings of the references in the manner suggested by the examiner is the present application, and to use an inventor's disclosure as a road map or template to aid in effecting a combination of references is to use against the inventor that which only he has taught, which is not a proper basis for rejection of the claims.

It should be noted that the question that must be addressed in a determination of obviousness is whether the prior art would have suggested to

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one of ordinary skill in the art that the claimed subject matter should be carried out, and that it would have a reasonable likelihood of success, viewed in the light of the prior art. See *Burlington Industries v. Quigg*, 822 F.2d 1581, 1583, 3 USPQ2d 1436, 1438 (Fed. Cir. 1987); *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1987); *Orthopedic Equipment Co. v. United States*, 702 F.2d 1005, 1013, 217 USPQ 193, 200 (Fed. Cir. 1983); *In re Rinehart*, 531 F.2d 1048, 1053-54, 189 USPQ 143, 148 (CCPA 1976). Both the suggestion and the expectation of success must find basis in the prior art, not in the applicant's disclosure. The prior art relied upon does not provide such a basis.

Further, claim 8 has also been amended to include functional language that identifies what the claimed apparatus does – the prevention of slippage. Such functional language is an integral part of the claim and must be considered. In that regard, as stated by the Board of Patent Appeals,

Although we have sustained several of the Examiner's rejections we here wish to specifically note that contrary to the Examiner's assertions, functional language in the claims must be given full weight and may not be disregarded in evaluating the patentability of the subject matter defined employing such functional language. However, the applicant must establish that what is taught by the reference does not inherently function in the same manner required by the claim; cf. *In re Hallman* decided by the CCPA July 16, 1981, 655 F.2d 212, 210 U.S.P.Q. 609.

Ex parte Bylund, 217 U.S.P.Q. 492, 498 (Bd. App. 1981).

And the Federal Circuit has held to the same effect. See, e.g., *K2 Corp. v. Salomon S.A.*, 52 U.S.P.Q.2d 1001, 1004 (Fed. Cir. 1999) ("The functional language is, of course, an additional limitation in the claim.").

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Dependent claims 9 through 17 and 21 each depend from claim 8, either directly or indirectly, and therefore the same distinctions as have been noted above with regard to claim 8 apply with equal effect to each of those dependent claims. Moreover, the dependent claims each recite an invention that is further distinguishable over the Kunii and Mori references.

Claim 19 has also been amended to more clearly recite the inventive method and to include a recitation of the function of the method to prevent slippage between a pair of conical disks and an endless torque-transmitting member. Claim 19 is clearly distinguishable over the teachings of the references, both individually and collectively, for the same reasons as apply to amended apparatus claim 8. And because claim 20 depends from claim 19, the same distinctions as have been noted with regard to claim 19 apply with equal effect to that dependent claim. Moreover, claim 20 recites an invention that is further distinguishable over the Kunii and Mori references.

Finally, although the examiner stated, "[T]he intended use of the control system does not differentiate the claimed apparatus from the prior art apparatus," the intended use of even a known apparatus can be the subject matter of method claims. 35 U.S.C. §100(b) ("The term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."). Therefore, even if one were to conclude that the apparatus is known, its use for the claimed purpose is a proper subject of method claims.

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Based upon the foregoing amendments and remarks, the claims as they now stand in the application are believed clearly to be in allowable form in that they patentably distinguish over the disclosures contained in the references that were cited and relied upon by the examiner, whether those references be considered alone or in combination. Consequently, this application is believed to be in condition for allowance, and reconsideration and reexamination of the application is respectfully requested with a view toward the issuance of an early Notice of Allowance.

The examiner is cordially invited to telephone the undersigned attorney if this amendment raises any questions, so that any such question can be quickly resolved in order that the present application can proceed toward allowance.

Respectfully submitted,



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